

AMENDMENT TO THE CLAIMS

1. (Currently and Previously Amended) A nanocomposite comprises comprising:
 - a. an aluminum alloy phase, which is formed during a consolidation step and a subsequent metal working step from aluminum or aluminum alloy particles with nano-scale surface aluminum oxide composed of an aluminum metal or aluminum alloy inside of said particles and an aluminum oxide layer on the outside of said particles.
 - b. a nano-scale aluminum oxide phase to provide strength to the nanocomposite, comprising nano-scale aluminum oxide particles in said nanocomposite, said nano-scale aluminum oxide particles are prepared from the aluminum or aluminum alloy particles with nano-scale surface aluminum oxide composed of an aluminum metal or aluminum alloy inside of said aluminum or aluminum alloy particles and an aluminum oxide layer on the outside of said aluminum or aluminum alloy particles , said nano-scale aluminum oxide phase is from said aluminum or aluminum alloy particles wherein said outside layer of aluminum oxides of said aluminum or aluminum alloy particles is broken in the processes of making said nanocomposite, wherein said breaking of said aluminum oxide layer of said aluminum or aluminum alloy particles does not happen in a step to make a powder mixture of said nanocomposite, and said breaking of said aluminum oxide layer happens during a consolidation step and subsequent metal working step, further an amount of said nano-scale aluminum oxide phase in said nanocomposite is quantitatively controllable in a step of making said aluminum or aluminum alloy particles with nano-scale surface aluminum oxide, and
 - c. a modulus phase of microsized ceramic particles to provide stiffness to the nanocomposite.
2. (Previously Amended) Said nanocomposite in accordance of Claim 1, wherein said aluminum alloy comprises elements taken from aluminum, boron, cobalt, copper, iron,

magnesium, manganese, nickel, silicon, titanium, zinc, alloys and a combination thereof.

3. (Original) Said nanocomposite in accordance of Claim 1, wherein said nano-scale aluminum oxide phase is nano-scale aluminum oxide particles being uniformly distributed in said nanocomposite.
4. (Original) Said nanocomposite in accordance of Claim 1, wherein said modulus phase is ceramic particles being uniformly distributed in said nanocomposite.
5. (Original) Said modulus ceramic particles in accordance of Claim 4 are selected from boron carbide powder, silicon carbide powder or other ceramic powders having higher elastic modulus than that of aluminum oxide.
6. (Previously Amended) Said nanocomposite in accordance of Claim 1 comprises comprising about 0.5 to about 10 volume percentage of said nano aluminum oxide particles.
7. (Previously Amended) Said nanocomposite in accordance of Claim 1 comprises comprising about 1 to about 45 volume percentage of said modulus ceramic particles.
8. (Previously Amended) Said nano-scale aluminum oxide particles in accordance of Claim 3 have having an average particle size between about 10 nm to about 800 nm.
9. (Previously Amended) Said modulus ceramic particles in accordance of Claim 4 comprises comprising an average particle size between about 0.2 microns to about 15 microns.